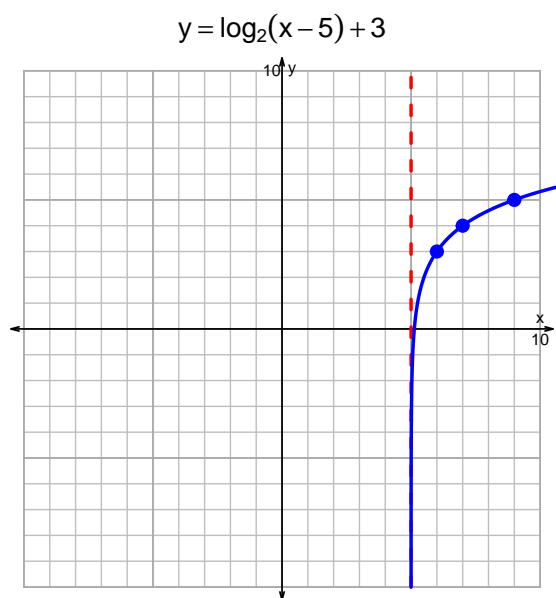
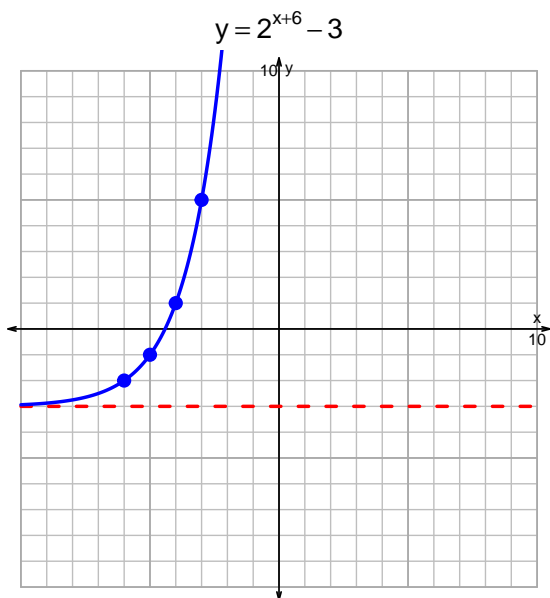


Name: \_\_\_\_\_

Date: \_\_\_\_\_

## s18QUIZ: EXP LOG (SLTN v213)

1. Graph  $y = 2^{x+6} - 3$  and  $y = \log_2(x - 5) + 3$  on the grids below. Also, draw any asymptotes with dotted lines.



2. Write (but do not evaluate) the solution to the equation below by writing a logarithmic expression.

$$-11 = \left(\frac{-5}{3}\right) \cdot 2^{7t/4}$$

Divide both sides by  $\frac{-5}{3}$ .

$$\frac{11 \cdot 3}{5} = 2^{7t/4}$$

Take log, base 2, of both sides.

$$\log_2\left(\frac{11 \cdot 3}{5}\right) = \frac{7t}{4}$$

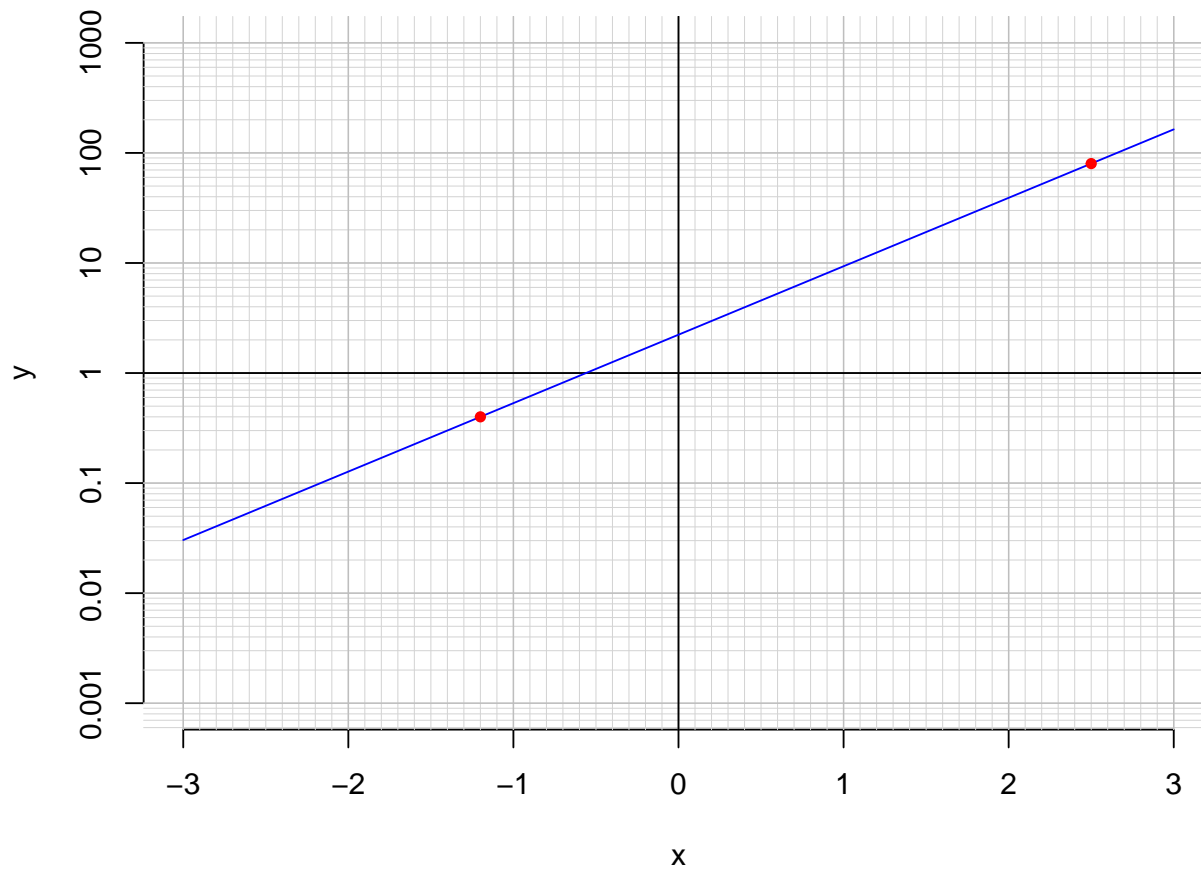
Divide both sides by  $\frac{7}{4}$ .

$$\frac{4}{7} \cdot \log_2\left(\frac{11 \cdot 3}{5}\right) = t$$

Switch sides.

$$t = \frac{4}{7} \cdot \log_2\left(\frac{11 \cdot 3}{5}\right)$$

3. An exponential function  $f(x) = 2.23 \cdot e^{1.43x}$  is graphed below on a semi-log plot.



- a. Using the plot above, evaluate  $f(2.5)$ .

$$f(2.5) = 80$$

- b. Express  $f^{-1}(x)$ , the inverse of  $f$ .

$$f^{-1}(x) = \frac{1}{1.43} \cdot \ln\left(\frac{x}{2.23}\right)$$

- c. Using the plot above, evaluate  $f^{-1}(0.4)$ .

$$f^{-1}(0.4) = -1.2$$